

Abstract

[0043] A logic device logic module includes multi-stage combinational logic circuitry (e.g., a four-input look-up table) into which EXCLUSIVE OR ("XOR")
5 circuitry is interposed to give the logic module arithmetic as well as combinational logic capabilities. The XOR circuitry is used to help form an arithmetic sum output signal (as an alternative to a combinational logic output signal) when arithmetic mode operation is
10 desired. The logic module is also augmented with circuitry for providing a carry out signal in arithmetic mode. The logic module can perform such arithmetic operations as one digit or bit of binary addition, subtraction, or multiplication. In all cases
15 a carry in signal is taken into account; and in the case of multiplication, a digit from another partial product or summation of other partial products is also taken into account.